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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,731	03/14/2005	Masaya Tamura	36856.1321	8857

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EXAMINER

ROJAS, BERNARD

ART UNIT PAPER NUMBER

2832

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/527,731	Applicant(s) TAMURA ET AL.	
	Examiner Bernard Rojas	Art Unit 2832	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11, 15-23, 29 and 30 is/are rejected.
- 7) ☒ Claim(s) 12-14 and 24-28 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>03142005</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 29 recites the limitation "the three bendable arm portions" in lines 1 and 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 15-23 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Hichwa et al. [US 6,303,885].

Claim 11, Hichwa et al. discloses a buckling actuator [20] comprising: a substrate [108]; a movable member [22] disposed above the substrate and shiftable in a predetermined shifting direction [98]; a stationary member [24,26] which is disposed on

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the substrate and supports the movable member; a supporting beam [79,80,81; 82,84,85; 86,87,88; 89,90,91] which is connected between the stationary member and the movable member in a buckling manner and supports the movable member at one of two switch positions selectively, the two switch positions being distant from each other in the shifting direction of the movable member; and a switching device [34] arranged to switch the position of the movable member; wherein at least one of a connecting section between the stationary member and the supporting beam, and a connecting section between the movable member and the supporting beam is provided with a rotatable supporter [79,81; 82,85; 86,88; 89,91] supporting the supporting beam in a rotatable manner about an axis line extending substantially perpendicular to the substrate.

Claim 15, Hichwa et al. discloses the buckling actuator according to claim 11, wherein each of the connecting section between the stationary member and the supporting beam and the connecting section between the movable member and the supporting beam is provided with the rotatable supporter, such that each end of the supporting beam is rotatably supported by the corresponding rotatable supporter [figure 2A].

Claim 16, Hichwa et al. discloses the buckling actuator according to claim 11, wherein a midsection of the supporting beam in the longitudinal direction of the supporting beam is provided with a reinforcing portion having higher rigidity than other sections of the supporting beam [the center of the supporting beams [80; 84; 87 and 90 are thicker than the ends 79,81; 82,85; 86,88 and 89,91].

Claim 17, Hichwa et al. discloses the buckling actuator according to claim 16, wherein a cross-section of the reinforcing portion is at least twice as rigid as a cross-section of each end of the supporting beam [figure 2A].

Claims 18-20, Hichwa et al. discloses the buckling actuator according to claim 11, wherein the switching device shifts the movable member by using an electrostatic force, magnetic force or piezoelectric force [col. 4 lines 10-15].

Claim 21, Hichwa et al. discloses the buckling actuator according to claim 11, wherein the movable member, the stationary member, the supporting beam, the rotatable supporter, and the switching device are composed of a single-crystal silicon material [col. 7 lines 59-64].

Claim 22, Hichwa et al. discloses the buckling actuator according to claim 11, wherein the movable member moves toward [figure 4A] and away from [figure 4B] an optical path [124,128,130,134] provided above the substrate based on the switch positions such that the movable member defines an optical switching unit for switching the optical path, the movable member being maintained at a corresponding one of the switch positions with a resilient force of the supporting beam.

Claim 23, Hichwa et al. discloses the buckling actuator according to claim 11, further comprising a plurality of stationary members and supporting beams, wherein four of the rotatable supporters are provided between respective ones of the stationary members and a corresponding one of the supporting beams [figure 2A].

Claim 30, Hichwa et al. discloses an optical switch device [120] comprising the buckling actuator according to claim 11 [figures 4A and 4B].

Allowable Subject Matter


Claims 12-14 and 24-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Rojas whose telephone number is (571) 272-1998. The examiner can normally be reached on M and W-F, 5:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


ELVIN ENAD
SUPERVISORY PATENT EXAMINER

19 April 07

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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